

ABSTRACT

This study aims to design and implement an Internet of Things (IoT) product to improve the efficiency of resource use in horticultural agriculture, with a primary focus on monitoring soil moisture, light intensity, temperature, and air humidity through a monitoring website. The methodology used includes the use of the Soil Moisture Sensor YL-69 to measure soil moisture, the MH Photoresistor Light Sensor Module to measure light intensity, and the DHT11 Sensor to measure temperature and air humidity. Data from these sensors are sent to the database and displayed on the monitoring website, which is tested to ensure the feasibility and performance of the system as a whole. The results of the study show that the sensors function well, are precise, and have satisfactory accuracy, with data generated and sent to the database and displayed on the monitoring website effectively. Testing of the monitoring website in terms of functionality, user interface (UI/UX), API performance, and database functions meets user expectations. The designed IoT product has succeeded in helping horticultural farmers in the efficient use of water resources, minimizing operational costs, and increasing productivity and quality of harvests, and is also expected to reduce horticultural price fluctuations caused by natural factors. Further development recommendations include the creation of an application equipped with a notification feature when the plant's environmental conditions are not good.

Keywords : *Internet of Things, Horticultural Agriculture, Soil Moisture Sensor, Light Intensity, Temperature and Air Humidity, Website Monitoring, Efficient Use of Resources.*